

REMARKS

Claims 1-18 are pending in the instant application. Claims 1-9 and 11-16 are rejected. After revisiting the restriction/election, claims 10, 17 and 18 are withdrawn. Claims 2-5 and 9, 11-16 have been cancelled without prejudice. Applicants reserve their right to prosecute subject matter of cancelled claims in subsequent applications.

An amended Abstract has been submitted to include the source species of the DNA sequence, *Arabidopsis thaliana* and to more specifically describe the invention.

The specification has been amended to delete the entire internet address.

Claim 1 has been amended to recite an isolated DNA comprising an open reading frame encoding a protein characterized by the amino acid sequence of SEQ ID NO: 3, an allelic amino acid sequence having amino acid residue K instead of M at position 705 of SEQ ID NO: 3, or an amino acid residue D instead of E at position 1219 of SEQ ID NO: 3. Support is in the specification and in original claim 5 as filed.

Claim 8 has been amended to recite An isolated protein characterized by the amino acid sequence of SEQ ID NO: 3, an allelic amino acid sequence having amino acid residue K instead of M at position 705 of SEQ ID NO: 3, or an amino acid residue D instead of E at position 1219 of SEQ ID NO: 3.

No new matter has been added by these amendments.

Restriction/Election

Upon revisiting the restriction requirement and election, the Examiner has placed claims 1-9 and 11-16 in Group I; claims 10 and 17 in Group II, and claim 18 in Group III. Applicants respectfully disagree with the classification of claims 17 and 18. Claim 17 and 18 should be in Group I. Claim 17 is not a PCR reaction, but an RNA version of the DNA molecule of claim 7 and should be included in the same group as Claim 7. Claim 18 is a method of using the RNA of claim 17 and should also be included in Group I.

Applicants respectfully request this change in the claim restriction groups to included claims 17-18 in Group I.

Objections to Specification

The specification was objected to for inappropriate notation of an internet address. Applicant has deleted the internet address on page 5, line 3. An amended Abstract has been submitted to include the source species of the DNA sequence, *Arabidopsis thaliana*.

Claim Objections

Claims 1, 2 and 8-16 are objected to for various informalities. Claim 1 has been amended to correct the grammar, claim 2 has been canceled, claim 8 is written in independent format, and claims 9-16 have been canceled. These amendments overcome these objections.

Claim Rejection under 35 U.S.C. § 112, second paragraph

Claims 3, 9 and 12 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3, 9 and 12 have been canceled, making this rejection moot.

Claim Rejection under 35 U.S.C. § 112, first paragraph

Claims 1-4 and 7 and claims 8, 9, 11-16 are rejected under 35 U.S.C. § 112, first paragraph, written description as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants respectfully disagree. However, to advance prosecution of certain embodiments, claim 1 has been amended to recite the amino acid sequences of allowed claim 5, claims 2-5, and 9-16 have been canceled without prejudice.

Claim Rejection under Section 101

Claims 8 and 11-16 have been rejected under 35 USC § 101 as allegedly being drawn to material that does not distinguish over the naturally occurring proteins. Claim 8 has been amended to include recitation of the word "isolated", thereby, overcoming this rejection. Claims 11-16 have been canceled making this rejection moot.

Claims 1-9 and 11-16 are rejected under 35 USC § 101 as allegedly lacking patentable utility.

Applicants respectfully disagree with this rejection. Claim 1 (and dependent claims 6-7) have been amended to recite SEQ ID NO:3 and two allelic variants. The specific, substantial, and credible utility of this sequence is described in the specification. Page 5, paragraph 3, describes the amino acid sequence motifs of the MOM protein identified in the application. "Sequence alignments using such computer programs reveal the presence of an ATP/GTP-binding motif A (amino acids 460 to 487 in SEQ ID NO:3), the consensus sequence of which is (Ala/Gly)XaaXaaXaaXaaGlyLys(Ser/Thr), wherein (Ala/Gly) indicates Ala or Gly, Xaa indicates any naturally occurring amino acid and (Ser/Thr) indicates Ser or Thr. Alignment additionally reveals a region (amino acid position 479 to 719 in SEQ ID NO:3), similar to part of the ATPase/helicase domain of proteins in the SW12/SNF2 family which are involved in chromatin remodeling but no significant overall sequence identity with known proteins."

Further, SEQ ID NO 3 is the amino acid sequence of the MOM protein of *Arabidopsis thaliana*. The specification shows that this protein mediates transcriptional gene silencing in a plant. This is shown in the Examples where a previously characterized *Arabidopsis* line that exhibits transcriptional silencing (exemplified by the fact that the transgenic hygromycin resistance locus is silenced), is subjected to random insertional mutagenesis with T-DNA (Example 1). Mutants that exhibited hygromycin resistance, and thus exhibited a release of transcriptional silencing of the hygromycin resistance gene were isolated and characterised (Examples 2 and 3), and the gene responsible for the silencing effect, MOM, was cloned (Example 4). The remaining Examples demonstrate that if you interfere with the expression of this gene, silencing can be released. It thus follows that if you have a transgenic plant where the transgene has been silenced through a transcriptional silencing mechanism, such silencing can be released by interfering with the expression of the MOM protein. This is merely exemplified by studying readily observable transgenic marker gene expression (e.g. hygromycin resistance). Accordingly the DNA encoding the MOM protein (and the claimed allelic variants) finds utility by enabling anti-sense or partial sense interference with the expression of endogenous MOM protein in transcriptionally silenced transgenic plants.

Conclusion

In view of the above amendments and remarks, it is submitted that the application is now ready for allowance. If any additional information is needed, the Examiner is invited to call the undersigned attorney at (919) 765-5071.

Respectfully submitted,

A handwritten signature in cursive script, reading "Mary Kakefuda", is written over a horizontal line.

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